Reconsideration of this application, as amended, is respectfully requested.

Claims 1-8, 10-17 and 19-26 are pending. Claims 1-8, 10-17 and 19-26 stand rejected.

Claims 1, 10, and 20 have been amended. No claims have been canceled. No claims have been added. Support for the amendments is found in the specification, the drawings, and in the claims as originally filed. Applicants submit that the amendments do not add new matter.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 1, 2, 4-8, 10-11, 13-17, 19-20, 22-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2003/0079210 to Markstein et al. ("Markstein"), in view of U.S. Patent No. 5,875,318 to Langford ("Langford").

Applicants have amended claim 1 to particularly point out that modifying the program to expand a register set for a routine in the program transparently to execution of the program includes adding one or more additional registers to the register set. The one or more additional registers of an expanded register set are to store data used to analyze the execution of the program.

Markstein discloses allocating registers in a compiler. More specifically, Markstein discloses that

> For example, when the number of available real registers is insufficient to store all of the intermediate values in the intermediate registers that are specified by the code instructions, some intermediate values may have to be stored in other memory. The process of temporarily storing data from a real register to another memory location is referred to as spilling. Generally, spilling involves performing a store operation, followed by one or more reload operations. A spill operation causes data contained in a real register to be stored in another memory location, such as a runtime stack. Each reload operation causes the data to be loaded or copied from the other memory location into a real register. Reload operations are performed when the data is required for a calculation. A prologue and an epilog may be used to save and restore callee-saved registers (e.g., registers storing operands preserved for an extended period of time during execution of the translated code). A prologue and epilog typically includes code executed before and after a subroutine or program. For example, when a prologue is executed stack space may

be allocated for saving necessary context, such as saving callee-saved registers. When an epilog is executed, the compiler may restore any necessary registers.

(Markstein, paragraph [0006]) (emphasis added)

The Examiner acknowledged that "Markstein... does not mention "modifying program" and "storing data used to analyze the execution of the program..." (Office Action, 11/30/05, p. 4).

Thus, Markstein discloses a spill operation that stores data from a register to a runtime stack.

Langford discloses a translator for translating a source code to a target code. More specifically, Langford discloses that the source code contains a self-modifying code (col. 1, lines 38-57). In particular, Langford discloses that the self- modifying code uses a different memory location to store data each time the code is executed (col. 3, lines 1-15).

It is respectfully submitted that Langford does not teach or suggest a combination with Langford, and Langford does not teach or suggest a combination with Markstein. Markstein discloses a compiler. Langford discloses a translator. It would be impermissible hindsight based on Applicants' own disclosure, to combine Markstein and Langford.

Furthermore, even if Markstein and Langford were combined, such a combination would lack the following limitations of amended claim 1: modifying the program to expand a register set for a routine in the program transparently to execution of the program that includes adding one or more additional registers to the register set, wherein the one or more additional registers of an expanded register set are to store data used to analyze the execution of the program. Therefore, it is respectfully submitted that amended claim 1 is not obvious under 35 U.S.C. § 103(a) over Markstein, in view of Langford.

Because amended claims 10 and 19 contain at least the discussed limitations of amended claim 1, Applicants respectfully submit that amended claims 10 and 19 are not obvious under 35 U.S.C. § 103(a) over Markstein, in view of Langford.

Given that claims 2-8, 11-17, and 20-26 depend from amended claims 1, 10, and 19 respectively, Applicants respectfully submit that claims 2-8, 11-17, and 20-26 are not obvious under 35 U.S.C. § 103(a) over Markstein, in view of Langford.

Claims 3, 12 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Markstein, in view of Langford and further in view of U.S. Patent No. 5,644,709 to Austin ("Austin").

As set forth above, Markstein discloses storing data from a register to a runtime stack. Langford discloses using a different memory location to store data.

Austin discloses detecting computer memory access errors.

It is respectfully submitted that Markstein does not teach or suggest a combination with Langford and Austin, Langford does not teach or suggest a combination with Markstein and Austin, and Austin does not teach or suggest a combination with Markstein and Langford. Markstein discloses allocating registers in a compiler. Langford, in contrast, discloses translating a source code to a target code by a translator. Austin, in contrast to Markstein and Langford, discloses detecting computer memory access errors. It would be impermissible hindsight based on Applicants' own disclosure, to combine Markstein, Langford, and Austin.

Furthermore, even if Markstein, Langford, and Austin were combined, such a combination would lack the following limitations of amended claim 1: modifying the program to expand a register set for a routine in the program transparently to execution of the program that includes adding one or more additional registers to the register set, wherein the one or more additional registers of an expanded register set are to store data used to analyze the execution of the program.

Therefore, it is respectfully submitted that amended claim 1 is not obvious under 35 U.S.C. § 103(a) over Markstein, in view of Langford, and further in view of Austin.

Because amended claims 10 and 19 contain at least the discussed limitations of amended claim 1, Applicants respectfully submit that amended claims 10 and 19 are not obvious under 35 U.S.C. § 103(a) over Markstein, in view of Langford, and further in view of Austin.

Given that claims 3, 12 and 20 depend from amended claims 1, 10, and 19 respectively, Applicants respectfully submit that claims 3, 12 and 20 are not obvious under 35 U.S.C. § 103(a) over Markstein, in view of Langford, and further in view of Austin.

CONCLUSION

It is respectfully submitted that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome. If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

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